

# Risk Factors for Agricultural Injury

Hearing impairment increases likelihood of farm injuries.

**F**arming is one of the most hazardous occupations in the United States. Compared with most other occupations, farmers are more likely to experience work-related injuries and die from those injuries. The National Safety Council recently reported occupational injury death rates for agriculture of 22.5 per 100,000 workers compared with 3.8 per 100,000 for all industries. Previous studies were based on relatively small numbers of injured farmers, ranging from approximately 30 to 155, limiting their ability to examine multiple risk factors in detail. It is important to identify factors contributing to agricultural injuries so that farmers can take appropriate precautions.

The Agricultural Health Study provided an opportunity to look at a large group of Iowa farmers. A questionnaire completed by 6,999 farmers identified 431 farmers who had a farm work-related injury requiring medical advice or treatment in the previous year. We compared these injury cases with 473 controls who had no injury in the previous year. The 431 cases reported 510 injuries of varying nature.

Sprains, cuts, and fractures made up most of the injuries. Of the 431 injured farmers, 377 reported a single injury over the past year, whereas the remaining reported two or more injuries. Fifty-two farmers required hospitalization for their injuries. Hand, finger, and fingernail injuries were the most common (119 or 23% of the injuries), followed by low back injuries accounting for (75 or 15% of the injuries). No other part of the body accounted for more than 8% of the remaining injuries. There were 228 farm machinery-related injuries (45% of total injuries) and 131 livestock-related injuries (26% of total injuries). These types and frequencies of injury are similar to those that have been reported by U.S. farmers who participated in a 1995 government survey.

We assessed the relationship among 40 characteristics of farmers for these injuries. Long work, better education, younger age, large livestock on the farm, medication, and hearing aid use were each significantly associated with injury. In this study, the strongest association with farmwork-related injury was seen in those farmers who

## Characteristics of the 510 Injuries among 431 Farmers with Farm Work-Related Injury in the Past 12 Months in Iowa, 1997

Nature of Injury	Number of Injuries	% of Total Injuries
Sprains, strains, tears	104	20.4
Cuts, lacerations	104	20.4
Fractures	74	14.5
Dislocations	46	9.0
Bruises, contusions	46	9.0
Other or unspecified	136	26.7



[www.aghealth.org](http://www.aghealth.org)

The Agricultural Health Study seeks to identify factors that promote good health.

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reported wearing a hearing aid (2.36 times higher compared with farmers who did not report wearing a hearing aid (see chart on next page). Our results suggest that younger farmers may have more injuries because they are less experienced. Higher education is not a likely cause for injury, but makes it more likely that farmers recall and report injuries to researchers.

Our results confirm the results of other studies that showed a relationship between injury and large livestock on the farm. We found the odds ratio of injury associated with raising hogs and cattle were similar (1.70 for hog farmers and 1.69 for cattle farmers).

There are several possible explanations for the observed association between medications and injury. One possibility is that injuries increase because of medication side

effects that may alter alertness or impair judgment. Another possible explanation is that the conditions requiring medication may impair physical or mental abilities. We were not able to evaluate which specific medications may increase the chances of being injured.

Problems with hearing may make it more difficult to detect sounds that could warn of injury.

The study results confirmed findings of previous studies on farm injuries.

Our findings identify important risk factors for agricultural injuries. This is the first step in our research, aimed at developing ways to reduce farmwork-related injuries.

More specifics on these findings are available through our Web site at [www.aghealth.org](http://www.aghealth.org).

**The Agricultural Health Study** is a long-term study to investigate the effects of environmental, occupational, dietary, and genetic factors on the health of the agricultural population. This study will provide information that agricultural workers can use in making decisions about their health and the health of their families. The study is conducted in Iowa by the Department of Epidemiology at the University of Iowa and in North Carolina by Battelle CPHRE. The study is directed by the National Cancer Institute, the National Institute of Environmental Health, and the US Environmental Protection Agency.

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### Factors Associated with Significant Risk for Farmwork-related Injury in the Past 12 Months in Iowa, 1997

